

male genitalia. Also detailed distribution records are given for each species as well as maps for many. Biological data are also presented for the various species.

Taxonomically, this is a major work, the type of which is greatly needed. This excellent monograph should be a must for anyone interested in the identification of beetles. N.M.D.

## Anomalous Antennae in the Cantharidae (Coleoptera)<sup>1</sup>

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The normal antennae of most of the genera of the Cantharidae in North America are filiform with all but the basal three segments similar in size and shape.

There is, in the collection of the University of California at Davis, California, a specimen of *Podabrus ambiguus* Fall in which the left antenna is grossly misshapen (fig. 1). The fourth and fifth segments are noticeably thicker than the same segments on the right antenna. The sixth segment is vastly enlarged and podiform. Arising from the heel of the foot-shaped segment is an antennule of four malformed segments, the basal one of which is triangular, the rest filiform but contorted. From the toe of the foot-shaped sixth segment arises the nearly normal apical five segments. This specimen was collected at Davis, California, April 3, 1947 by E. Schlinger.

In the collection of the California Department of Agriculture in Sacramento, is a male of *Cantharis americana* Pic in which the right antenna is somewhat similarly split. The sixth and seventh segments are fused and apically expanded into a large, somewhat compressed, cone. Two antennules arise from the distal margin of this cone, each composed of four moderately normal segments. This specimen was collected at Rutherford, Napa County, California, July 20, 1959 by T. R. Haig.

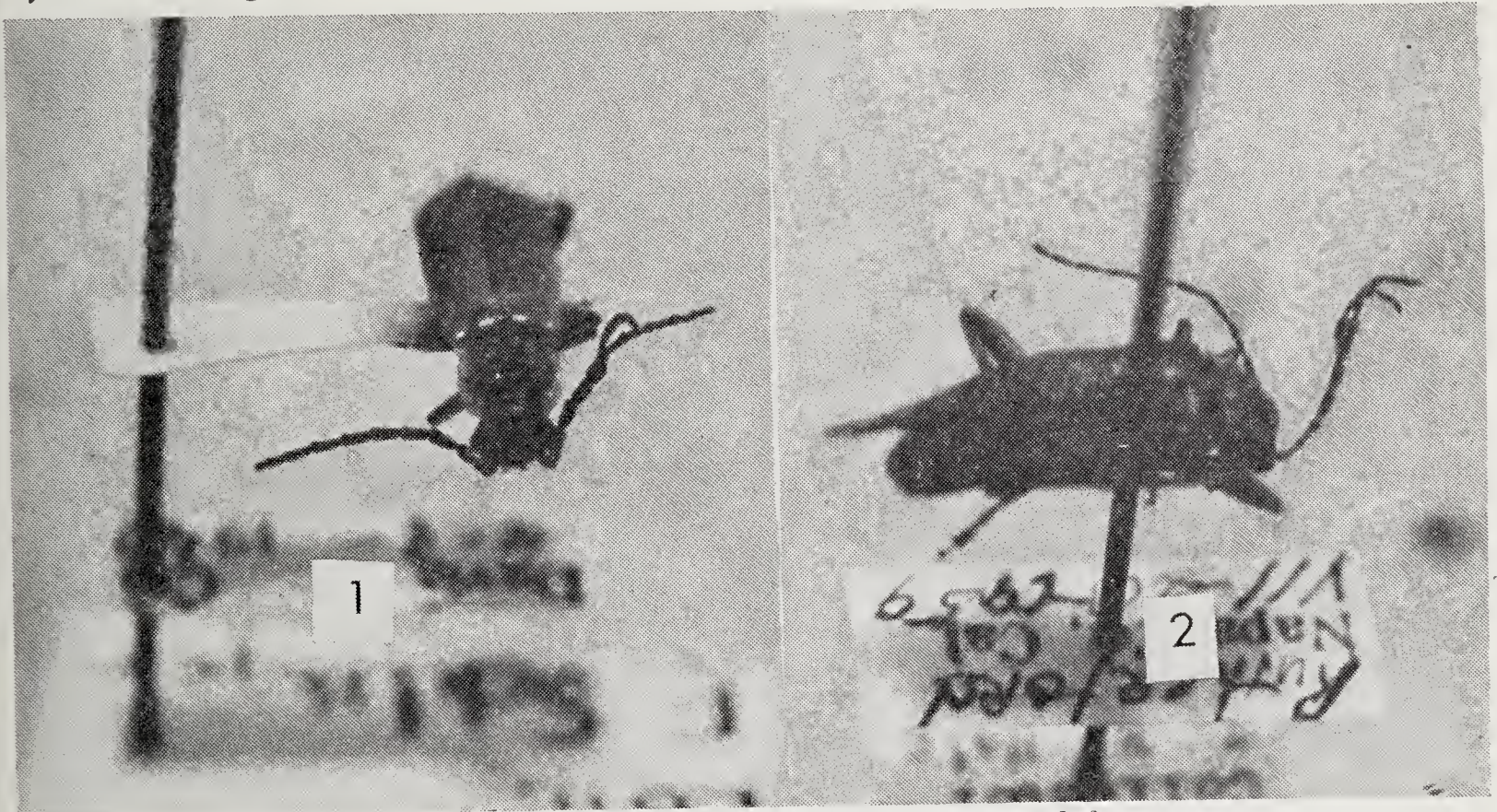


FIGURE 1. *Podabrus ambiguus* Fall with anomalous left antenna.

FIGURE 2. *Cantharis americana* Pic with anomalous right antenna.

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Anomalous antennae such as these seem to be very scarce in the Cantharidae, these two examples being the only ones noticed out of thousands of specimens examined. It would be interesting to know of similar findings in other groups of beetles.

I would like to express my appreciation to R. O. Schuster and T. N. Seeno for the loan of the Cantharid sections of the collections under their control, in which these specimens were found, and to my son, William M. Fender, for photographing the specimens.

## Biological and Taxonomic Notes on *Brachyogmus ornatus*, with Descriptions of Larval and Pupal Stages (Coleoptera: Curculionidae)<sup>1</sup>

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The weevil genus *Brachyogmus* Linell and its only included species, *Brachyogmus ornatus* Linell, were originally described in 1897 from material collected in California. The few subsequent references to these taxa in the literature consist mostly of their inclusion in catalogues (Leng, 1920; Schenkling and Marshall, 1934) and in a generic key (Kissinger, 1964). Tanner (1966) discussed the species in connection with a study of the weevils of the Nevada Test Site. Observations on the biology of *Brachyogmus ornatus*, descriptions and illustrations of the larval and pupal stages, and a review of the taxonomic relationships of the species are included in the present paper.

### Biology

Tanner (1966) published the first host record for *Brachyogmus ornatus*, stating that the species "breeds in the flowers and seeds" of *Lycium pallidum* Miers. in Nevada. Label data indicate that adults of the species have also been collected on additional species of *Lycium* in California and Arizona. My first attempt to collect the species, mainly for the purpose of obtaining the immature stages, occurred during August, 1965 in the vicinity of Estancia, New Mexico. A few adult weevils were beaten from plants of *Lycium pallidum*, but the immature stages were not found at that time. The plants were mostly in a vegetative stage of growth, with a few mummified flowers being present. Some of these flowers had exit holes and larval feeding cavities suggestive of previous weevil infestations.

The same area was revisited on July 11, 1967, at which time the plants were profusely blooming and fruiting. Adults, mature larvae, and pupae of *B. ornatus* were collected in abundance. Mature larvae occurred within closed flowers feeding usually on the bases of the stamens and on the ovary. Some larvae apparently

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